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Transgenic animals of the invention have uses which include, but are not limited to, animal model systems useful in elaborating the biological function of polypeptides of the present invention, studying conditions and/or disorders associated with aberrant expression, and in screening for compounds effective in ameliorating such conditions and/or disorders.

Example 14: Knock-Out Animals

Endogenous gene expression can also be reduced by inactivating or "knocking out" the gene and/or its promoter using targeted homologous recombination. (E. g., see Smithies et al., Nature 317: 230-234 (1985); Thomas & Capecchi, Cell 51: 503512 (1987); Thompson et al., Cell 5: 313-321 (1989); each of which is incorporated by reference herein in its entirety). For example, a mutant, non-functional polynucleotide of the invention (or a completely unrelated DNA sequence) flanked by DNA homologous to the endogenous polynucleotide sequence (either the coding regions or regulatory regions of the gene) can be used, with or without a selectable marker and/or a negative selectable marker, to transfect cells that express polypeptides of the invention *in vivo*. In another embodiment, techniques known in the art are used to generate knockouts in cells that contain, but do not express the gene of interest. Insertion of the DNA construct, via targeted homologous recombination, results in inactivation of the targeted gene. Such approaches are particularly suited in research and agricultural fields where modifications to embryonic stem cells can be used to generate animal offspring with an inactive targeted gene (e. g., see Thomas & Capecchi 1987 and Thompson 1989, supra). However this approach can be routinely adapted for use in humans provided the recombinant DNA constructs are directly administered or targeted to the required site *in vivo* using appropriate viral vectors that will be apparent to those of skill in the art.

In further embodiments of the invention, cells that are genetically engineered to express the polypeptides of the invention, or alternatively, that are genetically engineered not to express the polypeptides of the invention (e. g., knockouts) are administered to a patient *in vivo*. Such cells may be obtained from the patient (I. e., animal, including human) or an MHC compatible donor and can include, but are not limited to fibroblasts, bone marrow cells, blood cells (e. g., lymphocytes), adipocytes, muscle cells, endothelial cells etc. The cells are genetically engineered *in vitro* using recombinant DNA techniques to introduce the coding sequence of polypeptides of the invention into the cells, or

alternatively, to disrupt the coding sequence and/or endogenous regulatory sequence associated with the polypeptides of the invention, e. g., by transduction (using viral vectors, and preferably vectors that integrate the transgene into the cell genome) or transfection procedures, including, but not limited to, the use of plasmids, cosmids, YACs, naked DNA, electroporation, liposomes, etc.

The coding sequence of the polypeptides of the invention can be placed under the control of a strong constitutive or inducible promoter or promoter/enhancer to achieve expression, and preferably secretion, of the polypeptides of the invention. The engineered cells which express and preferably secrete the polypeptides of the invention can be introduced into the patient systemically, e. g., in the circulation, or intraperitoneally.

Alternatively, the cells can be incorporated into a matrix and implanted in the body, e. g., genetically engineered fibroblasts can be implanted as part of a skin graft; genetically engineered endothelial cells can be implanted as part of a lymphatic or vascular graft. (See, for example, Anderson et al. U. S. Patent 5,399,349; and Mulligan & Wilson, U. S. Patent 5,460,959 each of which is incorporated by reference herein in its entirety).

When the cells to be administered are non-autologous or non-MHC compatible cells, they can be administered using well known techniques which prevent the development of a host immune response against the introduced cells. For example, the cells may be introduced in an encapsulated form which, while allowing for an exchange of components with the immediate extracellular environment, does not allow the introduced cells to be recognized by the host immune system.

Transgenic and "knock-out" animals of the invention have uses which include, but are not limited to, animal model systems useful in elaborating the biological function of polypeptides of the present invention, studying conditions and/or disorders associated with aberrant expression, and in screening for compounds effective in ameliorating such conditions and/or disorders.

All patents, patent publications, and other published references mentioned herein are hereby incorporated by reference in their entireties as if each had been individually and specifically incorporated by reference herein. While preferred illustrative embodiments of the present invention are described, one skilled in the art will appreciate that the present invention can be practiced by other than the described embodiments,

which are presented for purposes of illustration only and not by way of limitation. The present invention is limited only by the claims that follow.

CLAIMS

We claim:

1. An isolated nucleic acid molecule comprising

(a) a nucleic acid molecule comprising a nucleic acid sequence that encodes an amino acid sequence of SEQ ID NO: 111 through 201;

(b) a nucleic acid molecule comprising a nucleic acid sequence of SEQ ID NO: 1 through 110;

(c) a nucleic acid molecule that selectively hybridizes to the nucleic acid molecule of (a) or (b); or

(d) a nucleic acid molecule having at least 60% sequence identity to the nucleic acid molecule of (a) or (b).

2. The nucleic acid molecule according to claim 1, wherein the nucleic acid molecule is a cDNA.

3. The nucleic acid molecule according to claim 1, wherein the nucleic acid molecule is genomic DNA.

4. The nucleic acid molecule according to claim 1, wherein the nucleic acid molecule is a mammalian nucleic acid molecule.

5. The nucleic acid molecule according to claim 4, wherein the nucleic acid molecule is a human nucleic acid molecule.

6. A method for determining the presence of a prostate specific nucleic acid (PSNA) in a sample, comprising the steps of:

(a) contacting the sample with the nucleic acid molecule according to claim 1 under conditions in which the nucleic acid molecule will selectively hybridize to a prostate specific nucleic acid; and

(b) detecting hybridization of the nucleic acid molecule to a PSNA in the sample, wherein the detection of the hybridization indicates the presence of a PSNA in the sample.

7. A vector comprising the nucleic acid molecule of claim 1.

8. A host cell comprising the vector according to claim 7.

9. A method for producing a polypeptide encoded by the nucleic acid molecule according to claim 1, comprising the steps of (a) providing a host cell comprising the nucleic acid molecule operably linked to one or more expression control sequences, and (b) incubating the host cell under conditions in which the polypeptide is produced.

10. A polypeptide encoded by the nucleic acid molecule according to claim 1.

11. An isolated polypeptide selected from the group consisting of:

(a) a polypeptide comprising an amino acid sequence with at least 60% sequence identity to of SEQ ID NO: 111 through 201; or

(b) a polypeptide comprising an amino acid sequence encoded by a nucleic acid molecule comprising a nucleic acid sequence of SEQ ID NO: 1 through 110.

12. An antibody or fragment thereof that specifically binds to the polypeptide according to claim 11.

13. A method for determining the presence of a prostate specific protein in a sample, comprising the steps of:

(a) contacting the sample with the antibody according to claim 12 under conditions in which the antibody will selectively bind to the prostate specific protein; and

(b) detecting binding of the antibody to a prostate specific protein in the sample, wherein the detection of binding indicates the presence of a prostate specific protein in the sample.

14. A method for diagnosing and monitoring the presence and metastases of prostate cancer in a patient, comprising the steps of:

(a) determining an amount of the nucleic acid molecule of claim 1 or a polypeptide of claim 6 in a sample of a patient; and

(b) comparing the amount of the determined nucleic acid molecule or the polypeptide in the sample of the patient to the amount of the prostate specific marker in a normal control; wherein a difference in the amount of the nucleic acid molecule or the polypeptide in the sample compared to the amount of the nucleic acid molecule or the polypeptide in the normal control is associated with the presence of prostate cancer.

15. A kit for detecting a risk of cancer or presence of cancer in a patient, said kit comprising a means for determining the presence the nucleic acid molecule of claim 1 or a polypeptide of claim 6 in a sample of a patient.

16. A method of treating a patient with prostate cancer, comprising the step of administering a composition according to claim 12 to a patient in need thereof, wherein said administration induces an immune response against the prostate cancer cell expressing the nucleic acid molecule or polypeptide.

17. A vaccine comprising the polypeptide or the nucleic acid encoding the polypeptide of claim 11.

SEQUENCE LISTING

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Macina, Roberto
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Ali, Shujath
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tttaaaggag acagccacat acaaggctcc cagagatgtt cttccatctt cctctgtctt 600

gctcagagac acagctggct cctcattgat cacgcttctc aactcttgga gaagctgttt 660

caggtccctt gttggatctt ccttcagtgt gttagctttt gtagagtgcc ctcccccacc 720

tgctgcagca gctgcatggt gccaacagca tctctgggca ctgagggaga gagagcgtag 780

caatcgtgat ggattgaact cggtgctgtt cttaggtact agcacaacca caggggaata 840

gggcaccaag caggctattg gggtccccga ttccaggctc tggcttgtgg aaggcatttc 900

tggacctgcc ctggatgaga ggggagtcca ctgcccttgt ccttgtgtgg tcctggctgt 960

ctgggtaggt gtcctgggtg gactcagtgt ttctctgggt tgtgtctgag atgactgtct 1020

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cagagtgttg ctctgtcact caggctggag tgtagtgctg caatcatggc tcactgcagt 1140

cttgatctcc taggcaacag agcaaagacc ttgtctctac aaaataaaag aatacgaagg 1200

tagttgccta ccctattagg aaaataattc caaaatgcct gtgtaacttc ttgcaaataa 1260

caaatatatt aataataagc acatttggaa tgagtttttc catccctggc caaacaacaa 1320

caaataatac accagaatat taacacatga agtctagtac catgtagttc aggggagatc 1380

tctcttactc acattaggat ctaacattag catgtaaagc aaaaatcaca catcatcatg 1440

attattcttg taagttgtac acaaggtaca tctgagctga agggagtcag tgacttgagg 1500

ctcacccgcc actctgcagt ggcccagccg tatgtggtgg catactggta taccacatgg 1560

ggaaagcact ggacaagacg actcttggag attccttttg aatgataaaa attttgaaga 1620

cctttggagt aacttacacc cacttccctg gagttttacg ttgcctcttt ttaaagtcag 1680

gggctactca aagctgttag ggaaaaaacc aaggtc 1716

<210> 24
<211> 417
<212> DNA
<213> Homo sapien

<400> 24
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ctgggattga taggaggttg cagatttctg gctactaagt gcactgtaga agtggtattg 180

atatcagtct tttctttctt tttttcttat tcttgtgctt tggattatta tgtaaatatg 240

tgaaacagaa catgcttact ttttcttagg gacctaggtt attactattt ctactctgat 300

tcatgtctta caagtaacac atgtccccca atttcagaaa aggtacctgc ccgggcgccg 360

ctcgaaattc cagcacactg cggccgtaca agtggaggcg agctcgtcac agctgat 417

<210> 25
<211> 183
<212> DNA
<213> Homo sapien

<400> 25
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tgaattaaac tttaattata aatacttaac attaacttca ttaagatatt aaaaatctta 120

agatttctgt gaaatgaaga taggtaaata aagatttttc tatttttttaa aaagttcttt 180

ctg 183

<210> 26
<211> 319
<212> DNA
<213> Homo sapien

<400> 26
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cagggtttgc tatgacacac tcagagaaac ctcaaacact cgcagcctgc tgtctttagg 120

ctctgaccgg acaacaatat ccaaaatcat tggctaactc cactgctatt gtatagagtt 180

ggggccttct cgttcatggt tacagctcgg gaagttacac tatccccatt ttatggatga 240

gtaactgtat tttcagaatg ctattaccta gatcaaaaga atctaatgaa catttagaga 300

cctggcataa agtacctgc 319

<210> 27
<211> 366
<212> DNA
<213> Homo sapien

<400> 27
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agagccgtta attaggaaaa aaagaaatga aaggcaccca aatcagaaag aaataagtaa 120

aattatctct gttcacatat catatgatct catatgtaaa aaacatattc cacaatttcc 180

accaaaaaaa aaccctgtta gaactaataa ataaatacaa caaagcagca ggcataaaca 240

aaaatcatca cgcaaaaatc agtcacattg ctacacacta acactgaaca atctaaaaag 300

aaaactaaga aaacaattcc atatacagta gtatcacaaa gaataatact atttagaaat 360

tagcca 366

<210> 28
<211> 180
<212> DNA
<213> Homo sapien

<400> 28
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gcagctgtat gtatactctg cataattcgg cttactaggt tccagtgata agaaaaccaa 120

gtgaaactat tttgtagaaa aaggaactag tcaactttta ttttttttacc aattattaat 180

<210> 29
<211> 833
<212> DNA
<213> Homo sapien

<400> 29
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ttgaccatgt gtccatggga tttttcacag cctcttatgt ttcattggtt tatacatttc 120

tttatgccag caccaaacaa cttgtgatgt actatagctc tgtgaatata ctgtgaagtc 180

aggaagtggg aacctctccc atcttgtatt cttttctcaa gaatgttttg gctatttgac 240

ataccttttgg tgccatataa attccagcat tgtttttttc aatttttttgt aaaaatatct 300

ttggaatttt gatatggatt gtattgaatc tgtagattac tttggatagt atggacattt 360

tattgatgtt ccatgaatgt aaagtgtttt tcttattgta tttgtgcctt ttttctcttt 420

caagaatgtt ttgtagtttt aagttacatg ttttttgccc tcttaagttt attcttatgc 480

tattttatcc tttttcatgt attatagata aaattgtttt cttatttgtg atagttaatg 540

gttactctat agaaatgtaa ttaatttttg ctgatttttg tatcctgaaa ttttgcttaa 600

ttttgttggc tctaacagtt tttgtgtgtg tgcatgtatg tcagagatat cattaaggtt 660

ttctatgtat attatcaggt catctgtgaa caaaaaataa ttttacttct ttatttctta 720

tttggatgca ttttgttcct tttttttttct tttgcctaac tgctccagcc agacttccag 780

tacctgccca aacgaattgc agcacactgc gccgtatatc gatcgggctc tcc 833

<210> 30
<211> 707
<212> DNA
<213> Homo sapien

<400> 30
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tttctttgcc cgaaaaaaaa atgggggtag gaaacaggtg gtggcacagt tgtcgcaggt 120

gattaacatc tctccctccc gaaccttcgc cgggcggcgc cgtcctcaaa cgccagaatc 180

ccagacacca atgggcgcgc gtacttatat gtgcactcca gacgcgtcgg acacaaacct 240

ttgaataaca tcttgtcaca tacgtgttgt cccatggagt aaatagggtt cctcgcggct 300

ctcacaaatc ctccacgacc aacttccgag agcaacgcgg gaagcgcgag ggaagacgac 360

gaggagcagg gacgagagcg gccgcgcaga gagccggagg ccgggcggcg acggagacgg 420

cgagcgcgag agacggaggg gagaggagga agacggggcg cgcgcgcgga gagagcgagc 480

ggcgcgacga ggaggaggag gaggagggga gggggagcgg ggagagcggg gggcgggaga 540

gagggagcag ggggagagaa gaggggagga ggcaggagag acggggaaga gggcaggaag 600

cgaagagaga gagaagaaga ggaacagagg ggaagagcga gagggagcga gaggcgggag 660

aggcaggggg caacgacgag agggaacgag gaggcgaaga agagcga 707

<210> 31
<211> 264
<212> DNA
<213> Homo sapien

<400> 31
gacagcctct ttttctatcc ttgtgtttta ccaatcacca cctcaatctc ttggaaataa 60

tgaggatttg tattctcgaa tatttttcta atttcagcac tagatgcttc aaaatccaga 120

ccttgagcta atttagatgc cccaagtaag ctgatgtggt attctaatgg tgtgatgact 180

tcccttatta aaacaacttt aaaatgctgc gtgtttatgt aactcgggcc cgaacacgct 240

aagccgaatt tcaggcacac tggg 264

<210> 32
<211> 349
<212> DNA
<213> Homo sapien

<400> 32
ccatgtttca tttcagcacc gacctgagaa aaagaaacat taggttctct caggataagt 60

atatggtttg aacaagtccc acaggaggtt ctgacatgaa ctacatctcc tccagggaaa 120

ggcttcataa aaggggtggc aattaagtaa ttaagctggg ctggaaaggt gaagtggatt 180

ttaactggta tagggagata aagcataaca ggctaaaggc acttcatgga aaaaggcagg 240

gagaagaaag cgggttgccc tttggaagaa cagcagatat accaggatgg ctgaggttag 300

atagtgtagg gccttaaatg acgtaataaa gaattgcaaa agtacctgc 349

<210> 33
<211> 482
<212> DNA
<213> Homo sapien

<400> 33
caagctttat gactgcttca acaattacaa tgtgatggaa atgatgtttt ttatgccttt 60

tgatattagg gtgtaaaaac tgatgtagtt tctgtctggc tttgaagaga ctatagaaaa 120

agaccagata aagccagcaa agaagtgctt cacggaagtc ccacgttttt cctggtccat 180

caacttggtt tgattttcta agttttaggc aattgatggg taattcagag aggcttcaga 240

agatttaagg cacggccatg gtctcactgc aactgcctga gagaatttaa gcaaaaatca 300

cctagctaaa ccaaccagtt cttagaacta tgacgagtaa taaatacgta tttgttttgc 360

cactaagttc tgtggtggta tgttacacag caataataac tggaaaatat cttgatatct 420

gacagaggag taatgccata acaaaaacat aaacatgtag aagtaatgtt aggacaaggg 480

aa 482

<210> 34
<211> 418
<212> DNA
<213> Homo sapien

<400> 34
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gatgaagagt ataaggtaga aagggaatgc agagttgagg atccaggaaa tgacttagtt 120

ccagaacaag ggtttttgaa tctgagcaga agctcaatta tcagagaact aaggcatgac 180

tctaggacca ttcttaggat aacagcattg atcctgagtc acctgcatgt tggaaaaggg 240

cctatttaaa tgcctcatgt ttaaggtctc cattgaacct ggagattacc cagatgtgca 300

ggtggagatt agccagagca ggatttgcag gtggggttaa agtcatcctt ggaagggatg 360

ggtctgaaca tttgagaact ctgacacttt atagactatt attgataata ttaaaagt 418

<210> 35
<211> 459
<212> DNA
<213> Homo sapien

<400> 35
gctttcgagc ggccgcccgg gcaggtactg tgacttgaat acctgtcagt aatgaggaaa 60

gggaaaggag aactgggatg aagagtataa ggtagaaagg gaatgcagag ttgaggatcc 120

aggaaatgac ttagttccag aacaagggtt tttgaatctg agcagaagct caattatcag 180

agaactaagg catgactcta ggaccattct taggataaca gcattgatcc tgagtcacct 240

gcatgttgga aaagggccta tttaaatgcc tcatgtttaa ggtctccatt gaacctggag 300

attacccaga tgtgcaggtg gagattagcc agagcaggat ttgcaggtgg ggttaaagtc 360

atccttggaa gggatgggtc tgaacatttg agaactctga cactttatag actattattg 420

ataatattaa aagtacctcg gccgcgacca cgctaagcc 459

<210> 36
<211> 372
<212> DNA
<213> Homo sapien

<400> 36
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ttaattttta tatttcaaaa ctttactaag aaagttttca aatatatgga agattttaag 120

gaattacaca gtgagcagta atacagccta cctagatcct accattaaca ttggttatct 180

ttgctttatc acatgtctat tcattcttct gccagtatat caatccatct tattttctga 240

tacattttaa agtagatgca gacatcagta aacatttaag ctccttatca ttatcagtgt 300

tttaatattt atttgtaggt ttcttttcta ggtaaaattt gcataaagta acgaattgca 360

taattcaagt gt 372

<210> 37
<211> 486
<212> DNA
<213> Homo sapien

<400> 37

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ttattgtctt ttatgaacat atacaacaaa gtaatatacc tttacataat gtctacatct 120

ctactgtaat ttaaacttta atggctcaaa aatgctaaat tacaaaatag agaaagatgt 180

gtgttaaatg cagattaata taatttaaat aatattatat ataataagga tttgtaaaac 240

ttaaccatta agatggatag atgagaaaga tagaaaccta gaatacaaca ctagaaaatc 300

tagaaacata gtagagatga gttcaataat tcgattctat ataagaggtc atcaaactac 360

aaagcacaga gctaatcagg ccactgatgc attttggtaa acaaagtttt attagaataa 420

agtgacatcc ttttatttta catattgtgt acggctactt atgcactacg atggcaaata 480

gttggt 486

<210> 38
<211> 920
<212> DNA
<213> Homo sapien

<400> 38

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ataattcatt tatctagcca aagtcatatt aatttggatt cctctccttt cctattgaca 120

cttttgcttc tattttattc cagtgtctta ttattaaacc cagttgttat tgcggaaaat 180

atagtattac tctaataagc ccccaagccc tcctctaaca tatttaatat gaacatatta 240

atcaaatatt gtttagaaac ctctatattt cgggatatac aaaggtgttg tttgatcttc 300

ccatatttcc cctattctct tctgtttgga aacaaccaaa gaaaccagtg tctatatctc 360

tattatatta ggacctatga cgctataaaa atataaacta taccaactat gtatctctgg 420

tatactgcgc tggtatgcgc tatataaaat atctcacaat aacccatatt tctcttccca 480

cgcgcactat ccatgtttta tggggacgct atacaccgcc tattattcta ttgtaaacct 540

ctaacaaata ttcttctaca cacgatgttg gacaaggtct taaaaaccaa aatatgttat 600

gtctgcgtcc tacagaaaat atatgcgctg gtaaatcccc ttttggttat tgtggaccac 660

atctggtaag ctctcacaat ctcctcatcc ccccctacat aattaaattt tctttccagc 720

attgttataa acgcatggtg caagcaactc tgtgtttaac gttcctccat taacccccag 780

ttttacactt gaaaaacttt tgccacttat atacacattg ctcccatttt ttcttataaa 840

caaattactt tcccgggggc ccgtcaaaaa agccgaattc ccaccaccac tggggccgta 900

tcaagtgacc catcttgttc 920

<210> 39
<211> 151
<212> DNA
<213> Homo sapien

<400> 39
aaaaaacaac aaagaatctg aattggattt tttcatctca aaattattgt gtttctcgtt 60

gttcacaatt attcttcgta ggacttataa cttctccttt acacgcaagg cattttcctt 120

ggataccgtg cccgggaggg ccgcttcgaa a 151

<210> 40
<211> 584
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (147)..(472)
<223> a, c, g or t

<400> 40
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tcgaaggcaa aataggagca gtcactagac atggcaaaag cgggagcaag agagcgatgt 120

tgggggcggc gtgctacaca ccttttnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 180

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 240

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 300

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 360

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nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnaa tnaaccaaga 480

caccacagac agacacagcc acagacagca cgagcacaca tagcacacac cacacatcga 540

aggagacaac aaagaagcaa tcgaaacaat tacgaaaaag aaga 584

<210> 41
<211> 427
<212> DNA
<213> Homo sapien

<400> 41
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aaatcttggt aagcatgctg aactgtgtgg ctgtgtctga aactactaga tgctcctcaa 120

cagccactct agttttctcc tttagtgaca gaccgtgatt cttatcagag cacatttaca 180

atagaaaaat ggttaattct tatgtatgat cctaaactga aaaagaatca tagttattaa 240

tatggcaata gccaaaagaa aactctgcat gagaacgaga taataactac aatgtaataa 300

tttagtcttc tttcaagttg cagggatggg cacattaagg aaccagtatt tttttaatgg 360

gctagaacag aaagcgaagt gtatcatata gaatgacaat aagtaatgct acaagaaatg 420

tttgtgt 427

<210> 42
<211> 331
<212> DNA
<213> Homo sapien

<400> 42
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ggggtgggcc ctcatccaat gtagcttgtg ttctttttct ttttttttct tttggaaaca 120

gtgtctcgcc tctgtcaccc aggccgaagt tccgcagtgg tgcaactctt cggctctcac 180

ttgcaacctc tctgtgcctc tcttgggttt cccacggttt catcattcgc cctcagctct 240

tccttgacat agtttggaat ttacaggttt gcccacacac caccgccaag gattaatatt 300

tcttgtgata atttttatag gctacaacga c 331

<210> 43
<211> 452
<212> DNA
<213> Homo sapien

<400> 43
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acagataata cacagggact gttatgcctt agggatatac ttagagccca acttagtttt 120

cgcaaatgat aaaagcagac ctctcagata tcagcttccc taagaagtct gcgttgatgg 180

agtatacagg cagtttactt ctctgctcag gggataagca agcccccata aaagctgaaa 240

ttaatttatt acaattagtg tcaaagagac acaaggtctc aaaggaaaaa cttctgttct 300

gcccaaaaca agtaagatat ttgggtcccc taatgtcaaa gaaaggtctt tttatcaatc 360

tggatagagt aaaaagaata ttggctttcc tttccccaaa aactaagaaa caaaaatttt 420

aaggttggaa gcatactgca gaaattagat tc 452

<210> 44
<211> 481
<212> DNA
<213> Homo sapien

<400> 44
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gaaatttgct cctttgacaa gctactcttc tagaattcct ccatgaaagc cagcacaaga 120

tcacatttgg aagtgatgag actcaagcta gtaatgtaat gtcatattat tattttagaa 180

ataataataa tgatggtata atatataata ataaaagtaa cttttcaggt tccagtgtaa 240

agaaaaatac acagttttgt gtaagcttgc attctttaat cacacttcat gagctaatat 300

tttaatgact cctcttggat aataattagc catctcagct ccttacctgt catctgaaaa 360

ctacagtcac agttcaaagc ttaccagaca atgttttctc ctctttttc tagtaactaa 420

gatattaaaa gtcttcatgt ggaaaatgct ttttccaacc atgctaaaat ttcaaccttg 480

t 481

<210> 45
<211> 616
<212> DNA
<213> Homo sapien

<400> 45
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ctgaacatga acccacagga tccccagatc atgacacctc tcagtgttta ctcagagtag 120

atctggacag tatggattaa gaggaagaaa ttgagacacc ttacccccct tttcctccct 180

ctaataagat caggctaaat tcaatgcagg aagactttcc agggaataag aagcaaaggc 240

actaaaagaa agagttggaa aaccatacct acaagaagag tgaactgcgg tcttgaagca 300

ttgtgactta acccaaattt tgggatttac taacaggaca tgtgttaatc aagcagttca 360

ctttgaaaag gaaagttcta gtaagctcca cggcctttgt gaaaaggcca ttgaagtgag 420

agagaaaacc aagaggacca ttgagaaact gcaaaaaatg tatgccctaa ttggcaatac 480

ctactttaaa gaaaaatgta ataatatcac aatctctaca ataaatgttt tagcatagca 540

ctaaacccac aatatgctaa aaaagttgtc agtagaggag acagaaaata atctaaagaa 600

caggattgac tggtgt 616

<210> 46
<211> 548
<212> DNA
<213> Homo sapien

<400> 46
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acactaatcc atactattta agaacaaaag aagctgtttg gactaaataa tgaaaagtct 120

gtgtcactgg ccacagttcc aaataaaaaa cggtgtgaga gaataaagtg tatatgaagt 180

gagaataaga tatatatggg gcttctcaag aattctgata gagatgtgtg tgtgtgtgtg 240

tgtgtgtgtg tgtgcatggt cttgtgtaga attctactta gaagaagctc tgtatatatt 300

ttatcctcac ctacaaagtg tggatttcat ctgaagatgt ggccagtgac ccaggcttct 360

cattatttaa cccaggcaat ttctgttgtc cttcaacagg acagattagt gtcatacaaa 420

gaggaaatga attacaaggt cactcataag ataggtcacc tctccatctt agtggcagta 480

aaatgattac ttgctcagtc aatgaagacc agcaggtgat caggaccaag catcaggtag 540

agtttccg 548

<210> 47
<211> 298
<212> DNA
<213> Homo sapien

<400> 47
ggtacttttc tgtatctacg ttataattta attggcaatt taaagtatgt ttacttctat 60

acctttagac atattctaac tctgctcttt cagagtttga gatggtgtct gtttcctacc 120

taaagtaact attattaatt taatttgttt attcaaaatt atatactgtg cacttactct 180

gtaccaggcc catactaggg tctgctgatt ccggagacca aggaaaattt ccttctccat 240

gctccaagga attcacatgg gtgagctagg gaaaagaaaa aatcaatgat aatacagt 298

<210> 48
<211> 408
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (61)..(347)
<223> a, c, g or t

<400> 48
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nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 180

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 240

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 300

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnntca tggatcaaaa 360

gaatcaatat tactaagatg gctgaactgc ccaaagcaat gtacctgc 408

<210> 49
<211> 422
<212> DNA
<213> Homo sapien

<400> 49
acatgaatct caaagacctc caatcaggtt ccacccaaag aggaattcac caagacatat 60

tataatcaaa ctgtcaaaaa ttaaacatag agaatcttga aagcaggaaa gaaagggagt 120

tgagaagtga tgtctgcaag atggcttaca catacctgcc acttatgccc ctcacaaaaa 180

acaactgaaa ctcaattaga gtgtcagagg gaaagcatta aagtgtagca agagagtagt 240

gagattccct gtagtgttca gaagcccagg aaggcagcat agtgagggtg atggggcacc 300

ctgcctctgc cagctcatgt tccctgctga gattagcttg gagtcaagag ggactacccc 360

cttgagggga aaaggtaagc aaaagatccc caccagcttc cattgccact gaagagacct 420

gc 422

<210> 50
<211> 236
<212> DNA
<213> Homo sapien

<400> 50
ggcttgggca ggtacatgct cacatgtaag gctgagaatg gtgtctgttc ccatcagcca 60

aactgatgga aaacttgtaa ttcaacaggt attagatagg tgacacagta gtatctttcc 120

tcagtagtgg agaataatta gaaagaaata ctagaaaaaa ttagaaactt acataaagaa 180

ccaagagaag ccgaattcag cacactgcgc cgtataagtg atgcagctcg tccact 236

<210> 51
<211> 416
<212> DNA
<213> Homo sapien

<400> 51
gaatttacga aagcactaaa aggataccaa ttaagaccta taattcattc ggaaatagaa 60

aggagccaat tgatccagaa tagaagaaag aaaggaaata aagattagag taacaataga 120

tgacataaat aaatctaaaa ataggggaaa aaatcaatga aattaagagt tttgtctttt 180

aagataaaca aaactgggca aacacttagc taaactaaaa gaaaaaacag aaaacaaaaa 240

taaataaaat aataaatgga agagatatat tacaaagaga tcataaacaa tagattataa 300

aaaatatgac aaatagatca tagacacaca aatcataaat gatattacca aaaactacac 360

accaaaatat tgaacaactg ggaaaaagtg aataaatttc tagaagcata caacat 416

<210> 52
<211> 354
<212> DNA
<213> Homo sapien

<400> 52
gcaggtacat ttttaatgtc tcaataaata ttataaaaca ggccttaaaa ttctatatcc 60

catgtgagga aaacacttta aaaaaaaagg tttaaaaaaa tgggggcatg aagcaatttc 120

taagcaagcc ttataagctt gagtttcatt aaaaaaaaaa aaatcagaca ctgaaaagcc 180

taggggggaa aaacaacatt gctcacactg agcctaattt tggagactat tacaaaaata 240

aacaaatgat gatgaatgaa ctttcttatg gtaattaata gggaagcgaa aaagccggtg 300

tctccaagaa tgaagccaga ctctatgaaa aggaccggga gttggtaagg tacc 354

<210> 53
<211> 630
<212> DNA
<213> Homo sapien

<400> 53
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actggtgcta cagacacaca ccaccacacc tggcttcttg aatacattga atctaattat 120

attgattagt ttcaaatatg tatttctata ttatggcctg atggacataa taataatatt 180

acaaggtatg ctaaaaataa aaatgtgtta cagaattccc attttattat ttctttttt 240

ctttcttttt gacctgataa cagaaaagag catcttctca gatagacaaa aatctccttt 300

ctattcagcg catcaatacc acgcacattt tcgtctatct cccaacatgc tctcttctct 360

gttatcaggc caacccccac cccacccccc caccacccaa cagtggacca ctggaccgca 420

ccaccacaac agaccgcaaa cccgcggcga cacccccccac agtcgccagg gcggccgcac 480

cacccggcca tacaaggggc gcacagcacc gaccggctac gccagcagcc ggacgcaaac 540

acagcgcagg agcctcagaa gcggcgcccg gacggcacga gactcgtggc gaccactgtc 600

agagcggctg tccggaccaa cacagataaa 630

<210> 54
<211> 297
<212> DNA
<213> Homo sapien

<400> 54
accacctgat gtcaggatca tgaaatcatt ttgaggaagg gggtggtcaa attattcaaa 60

taatgctctt ccaatttcct gcttggagga gaaagaggtc tggaaatatt aatattcagt 120

atgtaaatcc atcatattct ttatggttcc catggcctca ctctatctgt agtttctcag 180

aacctttgtt ttatccactt tagagaatta agcctccggt tttctgctga ggcaggagag 240

gtgcagtcac ctgggcttag ccgactttca accaatacag tgtttggtgt tccctgt 297

<210> 55
<211> 124
<212> DNA
<213> Homo sapien

<400> 55
acatttctgg atatgcatat tagttgtgaa aacccaaaca gaaatttagt tttaagtagt 60

tacagactaa aactcatgaa tacctaacag aagcaaacac aaattgtttc taagaggatg 120

cact 124

<210> 56
<211> 183
<212> DNA
<213> Homo sapien

<400> 56
ggaaaagttc ttgaagtcat taatttagtc atttttcaga gaactgtaga cgagacttca 60

gggaagtcaa ctcaaaacag ttttcaccca gtggagttat ttagtggtaa gcatgaaaat 120

ttttttttctc aacttttttat ttcaaacttt ttcaagttta cataatgttt aaagattggg 180

tca 183

<210> 57
<211> 338
<212> DNA
<213> Homo sapien

<400> 57
gtgtgaattt ataattactt taaaataaaa tgtttaatta aaatacacag gataatattc 60

atgagaattt ttcagtataa caggttctcc aagagcagtg ctaggacaat caaaaacaca 120

aattctctac actgagtttt ccaaggagta aacaacacca ccaaaaaatt caaaaccaaa 180

acccaaaaca aagaagcatt cccatttaaa aagggaccta acttgactct gcttcagacc 240

tactaaatca gaatttctag gttgggtttc aagaaaatgc atttttctaa gttccactgg 300

tgatttttat gcacatgact gcaaaggaat cacagaga 338

<210> 58
<211> 899
<212> DNA
<213> Homo sapien

<400> 58
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aggtgtatag gcgcaggaca ttttcagtaa gccaatttga gtcaggggac aaagacaaag 120

gtgcaggaac ttcataaaga tggaggctac caaagagtaa cagtaactgg catctttatg 180

acgtcagacg cacattacgc tacacgacaa gatattattg taaataattg caacccactc 240

tttacggtag ataatattat tcctcttatt aaacaataga aataaaattg agagatgtta 300

tggtaacttt cttcaaggtc aaaccaacaa taagtaagat ggcagaccga ttggacgtca 360

aactacaaat catgcctgac gtcttaggag ccactcatta atcattacaa cctgtcgtcc 420

ataaccacac taatatacaa gcacgtgaat gttaatggat taaattgaca agtggataaa 480

tgagagtgaa gtatacatgt tagtagttat aaaaagcaag gatgatgaag aagtagaaga 540

aaaaagatga aggtggcaga agtcagtgat ttactgggta taagaaaaaa atataagaag 600

tgtataacaa ctgacaagag gatttgtggc gttgaacaaa atgatggaaa tgatggtggc 660

tttactggga aatgaataga aaggaggaga agacttgatg ggagtgggaa agagataagg 720

cattcagctt taatgctgtg gacttcattg ttgctatgaa aatgcaaatg gagatatttc 780

atctacagga gttgaagggg ccataatata ctttatcatc gctctctggc acctaagata 840

cctcgccaac ccgaagtaca gcacactgcg ccgctatacg tgagacgagc tcgtgcacc 899

<210> 59
<211> 406
<212> DNA
<213> Homo sapien

<400> 59
tttaacaaac tctcacttca ttaacaaacc acttgatgag ttgggataca aactgcttta 60

tggaaattgc caccaaaaag tgtgtataca gctactatgc ccaaattaag ccattcaatt 120

tttttaaatt aaatgcctaa tcaacgaact aggaaaggac tggcacaaac tggggtaatg 180

gattatgaac tttaacaatg ttaactttca cgataagaat ttgtacgagg gagcagggaa 240

tctgcaacaa cccatctcat gcattttcgt ccactctgat tgtatcatta tgatacgtaa 300

gaatgcctca tcctacaact actaacttta ataacaaaaa gcatggttaa tttgcatagg 360

cctatcatac aacttccttt acaatatggc agctcccata agaagt 406

<210> 60
<211> 212
<212> DNA
<213> Homo sapien

<400> 60
ttatccgaaa tacttgggac cagaagtgtc tcaaattcct ttttttttt tttaaatttg 60

ggaatttgca tttatccatt gctgatttta gcattcccat aattctgaaa ttgttcaaaa 120

ttcttgaatt tttccaatta acgcttttcc ttttgaacat tcattttggc acttggaaat 180

tgtttgtgga ttttgggggc atttgggatt tt 212

<210> 61
<211> 376
<212> DNA
<213> Homo sapien

<400> 61
gaggaaatgg ggagatgcag ttcaaaggat aaaaggcagc aatattttga ataaacaagg 60

ttgaaaattt taacttataa catgatggct atagttaata acagtgtatt gtgttggagt 120

tttgctcaat gactagatta ttgctgcttt tgacatggaa ggcagtgatg ggtaaatgta 180

tgagataatg gacatattaa tctgttccac tgtagtatat gtgtagctta aagcaacatg 240

tcatatacct taaatataaa caaaagtaac tttatttaaa gaaaaaacag ctgatactgt 300

taagtcacct agattggagg gtgaatgtga taccacagcg aaagtctaga atgatttgtg 360

aaccaataca cattaa 376

<210> 62
<211> 547
<212> DNA
<213> Homo sapien

<400> 62
catagaactt caattacacc gcaaccacca aaagataacc gtaaatgatt atctataatc 60

atttcattgt aatgagtttg gttgtgtctg ttcttcatgg cttttacagt aatgatttag 120

gcatcataga tctgatgaga gtccaggttc ttgtctgcaa gcaacagaag ccaacttttg 180

ctaacttaag caaaacagca acaacaaaca tttactggac agataataag tagctcacaa 240

agtcaatgtg aagactgcaa aacagaaaaa aaagattgaa agatgggtgt ggaggaaata 300

aaaactagga taagggttaa gaaatggcca cacgaactat tttcttagga tatcactact 360

gactatgcca ggaatgctgt aaagctatgc catagataat tatcgaaata gctccatgtt 420

gttgcaccat tgtctcaaga ctaaaattcc cagaatggag cagggtagga gtcagggcag 480

aggatccagg tacctgcccg ggcgccgctc gaagccgatt gcagcacact gcgccgtata 540

tcatgga 547

<210> 63
<211> 777
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (170)..(412)
<223> a, c, g or t

<400> 63
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taacacatag aatcactgta tgatccagca atccttttt cacaatggtc atgatttgga 120

aacaaactaa atagccatta acaaacgaat agataaaaaa aggtgatatn nnnnnnnnnn 180

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 240

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 300

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 360

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nntatataca 420

tacaaaggca tattattcag ctcaaaacac aaaacgaaat cctgccatat gtgcactact 480

tggatgagcc ttaaggatgt catattagaa ttagtcacag gaagggacaa attgctgcta 540

ggtaggtatt ctcatttctt gaaagtactc ttaaaactgg gtccaaccaa tacgaaacgg 600

gggcgtcgca aatggtggtt ttcccgggaa gaacagtaag gagaaatcaa gagctataag 660

ccagggtaat aatcttctta ggaaaggaat atttagatcc gtactggcaa ccgattccga 720

cgagggccga catggccagc ggacaatggg actgcacggt ctgggagtct catgaga 777

<210> 64
<211> 800
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature

<222> (561)..(760)
<223> a, c, g or t

<400> 64
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tgagtgacaa aaatggggtc caagtgaagc taaccgattt tgaaaaatgg gggagggagt 120

gatggctaag aggataaggc accattaata caatcccaaa agggctcaac tttgcaagag 180

atggcaaaat ccaaaaccca ttgctctagt gggattatat acaagtaaag atgtatctaa 240

gagtttcatt tcatgcacac atcaaacagc acaaattttg ccatctcagc agcacaaaca 300

ggtatgtcat aagggatcca tcaacacatc ctaaacttca tatgcaagtg ttgtagctat 360

ttgccataat gtttatatac aaagttcggc ctctttaaaa agtgagagtc caggaaaaat 420

atgaaaggaa tattgaaaat gatattatac cagtatctac tttgcaacat gtatctttgt 480

caaatcacaa agtaataact tgctaatacc tacagtgaaa tatatcttat aataagaagt 540

aagtaaagag aacagtaaag nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 600

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 660

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 720

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tgattgccga ttgccccaga 800

<210> 65
<211> 335
<212> DNA
<213> Homo sapien

<400> 65
gcatttaggt aggatgagat ttccccaccc cactcctcct cactccagag aaaatataag 60

aaataaaacc ttgataattt acaccaacat tagtagaact ttggtaagct acagtatatg 120

tggaagtggt aggaaatgac gaggctccat tcctgtgaaa tctattgtta gtaatcagaa 180

tcataggatc tgagtatgtc agggagaatg aataggctgg aatatatacc agtagggaat 240

atcagccttg aagtcgttgc cttgttgcta ttcctagcaa ataaaagatc cagactgttg 300

aaatatgtag caaggtatgt ttccaggaaa acact 335

<210> 66
<211> 690
<212> DNA
<213> Homo sapien

<400> 66

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ggaaaaaatt gggggctttt cttctgtgta taaacagcag tggtttgcta tgctgcgggc 120

agaacaggac agtgaggtgg ggcctcaaga aatcaataaa gaagaactag agggaaacag 180

catgaggtgt ggtagaaagc ttgccaaaga tggtgaatac tgctggcgtt ggacaggttt 240

taacttcggc ttcgacctac ttgtaactta caccaatcga tacatcattt tcaaacgcaa 300

tacactgaat cagccatgta gcggatctgt cagtttacag cctcgaagga gcatagcatt 360

taggtaggat gagatttccc caccccactc ctcctcactc cagagaaaat ataagaaata 420

aaaccttgat aatttacacc aacattagta gaactttggt aagctacagt atatgtggaa 480

gtggtaggaa atgacgaggc tccattcctg tgaaatctat tgttagtaat cagaatcata 540

ggatctgagt atgtcaggga gaatgaatag gctggaatat ataccagtag ggaatatcag 600

ccttgaagtc gttgccttgt tgctattcct agcaaataaa agatccagac tgttgaaata 660

tgtagcaagg tatgtttcca ggaaaacact 690

<210> 67
<211> 194
<212> DNA
<213> Homo sapien

<400> 67
acccgggact ggattaaggg gccgaactta caagggtatt aaagaagata ggtcctattt 60

gacagcatct cataatttaa cagtataaac caaaatggaa accaaaagag aagaatgtcc 120

tacaatagaa gtgtgagtat actgctgtgg gagcagggaa taattgggaa ggaaaagctg 180

gaaaaccctt aggt 194

<210> 68
<211> 717
<212> DNA
<213> Homo sapien

<400> 68
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tctcaaattg ctatcttgtg cgccgagtac accacaattt taaaatatga taaaagtggg 120

tctatttcat tctccatgtg acgtatccag attgtcttca gcaacatgta tagaaagacg 180

atcttgttat actgaaatgg cgttatacct ttgtgaaaaa agcaattggc tgttatttct 240

tgtggatcat gtttctggac tctggtattc gtgttctaat atatctgtat ttttaacctc 300

tctaacaata ccacattatc ttacctacta cagctgttaa aataagactt gatatcaaat 360

aatgtgaatc tttcaatttt attcttcctc agaattgttc tggctattct agttcttttt 420

ttccatatag aattttagaa ttagcttatt gaccgatatc tacaaaaatc cctgctggga 480

ttttgattga gattgtgaca tatcagtaaa tcaatttggg gagcattggc atcttgaaca 540

atactgactc tcccaatcca tgaacatggt atgtgtctct atttaggttt tctttaatta 600

tgttcatcgg tgttttgtag ttttcagcat acatattcct gcatatttat gttagattca 660

tgtttaagtt ttatattttt gttcttaatg taaatgacac tttttaattc cattttc 717

<210> 69
<211> 917
<212> DNA
<213> Homo sapien

<400> 69
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tcaccatcgt ggacttaagg tccatatcac ctcagggaga caagtagagt gggaggcatc 120

caaaaggtag gtgattcttc tcccctctag tgaagaatac aaggtcaatt tacaaaaaag 180

caccaccagc aaataagtgg aaaattagat tcataaaaca tttataatag cgtcaaaaaa 240

aagaaaatac tcagaaataa atttgacaaa aattgtataa gatctctaca ttaaaaatta 300

tgaaatacat gtaagagaaa ttaaagaaaa cctaaataga gacacatacc atgttcatgg 360

attgggagag tcagtattgt tcaagatgcc aatgctcccc aaattgattt actgatatgt 420

cacaatctca atcaaaatcc cagcagggat ttttgtagat atcggtcaat aagctaattc 480

taaaattcta tatggaaaaa aagaactaga atagccagaa caattctgag gaagaataaa 540

attgaaagat tcacattatt tgatatcaag tcttatttta acagctgtag taggtaagat 600

aatgtggtat tgttagagag gttaaaaata cagatatatt agaacacgaa taccagagtc 660

cagaaacatg atccacaaga aataacagcc aattgctttt ttcacaaagg tataacgcca 720

tttcagtata acaagatcgt ctttctatac atgttgctga agacaatctg gatacgtcac 780

atggagaatg aaatagaccc acttttatca tattttaaaa ttgtggtgta ctcggcgcac 840

aagatagcaa tttgagattc ctacactggg gctgacatgc tcaagagcat cgctaagggc 900

gataatcagg gggttaa 917

<210> 70
<211> 411
<212> DNA
<213> Homo sapien

<400> 70
ttatatatcc cttcttctta gggaaaaggg agatagggaa gtgtggatta ttttaggggg 60

gatataaatg atttttagga caattccaca ggcttgaaga acatacagtg gcttgggaca 120

aagtttgttg ggcccacaaa agcacataat ggtttgtaac aaaagtatga ccctgtgtgt 180

tggcagattt cagtctttat tcctgtaagt ttagttaatg caaactaact aaagaggaaa 240

acagctagga gtaattgttt tctttgacag ttccaaactt tagtcagaga gggaacttca 300

gagatcaact tcattctatg ctttaagaga gacagaggat taagagacag gaggtgagtg 360

gtgcaggtta gagagaactt gaagtttctt caatacagca tgtcaaagca c 411

<210> 71
<211> 564
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (463)..(463)
<223> a, c, g or t

<220>
<221> misc_feature
<222> (505)..(505)
<223> a, c, g or t

<400> 71
acgaatgtga aggcgtaaga actgaccatg gaaaatgaag gattaaaaaa aaaaacaagc 60

cacaaaccat ctgcatttac acaaattact ttaaatttat atacatatgt ttttaaatgc 120

atcagaaaat ataatgaata ttttagcatt ccaagcagtc atagctggaa ggagatccaa 180

ttttcctaat aacactaagc ttgcttagaa gagtctctct ttctaacaaa tttactttgg 240

aacaaaggtc tcatattttt catactatta ctggcagcaa attttcatct ttcaagaaga 300

atttgagttt agaaatagcc agaagtcggc cgggaatggt ggctcacgcc tgtaatccca 360

gcactttggg aggaggattg cttgatccca gaagtttgag actggcctgg gcgacataat 420

gagagccccg gtgtctgttg aaaagaaata gactgggtgc cgngggtcat gcctgtaatc 480

ctagcacttt gtgaggccta catgngtaga tcgtttgacg gcaggagttt gagaccagct 540

tgcgaaatct gtcttcttcc aaaa 564

<210> 72
<211> 598
<212> DNA
<213> Homo sapien

<400> 72
gggcgcagtg tgctggcatt cgggttgccg aggtacagct tcagcaggag caaccataaa 60

accattccca taaggaggga tatccagggg gaaagtttca ttaaagcaga aaactgaagt 120

taaacccaag aaaatagaga tacttgggca atataaaaag aacattaaaa agaatagatt 180

tttacatctt caaagcaatg aaaaaagaaa taatacccat aaaagaccag gaaagaagaa 240

aatgaaaacg tctttaaaat gcaaaacatt tatgaaatta aaaaatttaa tagatagatt 300

taaaaggcta gacatcaatg aactggcaga aagaaatgaa aaaaatcact gaaaaagcta 360

tcaaaaaaga taaaaagctg aagaaaaaaa gaaggaaaag ttcaaagata agttccaaca 420

tatatttgac aatagtttct taagcataga ctagagagag tgttgaaggt gtgggtgtgt 480

aagacagtag ttgggaattt tccaaaactg aagagagtcc tgagttctga ggctgagaga 540

gctcatcaag tgacaagaag ggcggatctt taaaaatcta tatctagaaa tactgtgg 598

<210> 73
<211> 248
<212> DNA
<213> Homo sapien

<400> 73
caaacaaaaa aaacaaaaaa caagttaata tgttagaagt attttcatta atggcagcta 60

ccagaaacca cattagcaac tggacaaaaa gaaagccaaa aatctaaaac aggtgtccac 120

aaactaggcc tgtggcctgt ttctataaat aaaatcttac tggaacaccg ccacacccac 180

tcatttttat acagtccccg ctgctcctgt tgtaatggca gcgtggagtc agtgcaacag 240

agaccata 248

<210> 74
<211> 528
<212> DNA
<213> Homo sapien

<400> 74
acgtaaggaa agtaaaaaca agtaaaaata cctgtgaagc ccatcattat acttattgat 60

aatatctttc aaagatgaac aaaaaatgaa gacttttca gacgaacatc cgggaaattg 120

attattagca gacctgttct accaaaagta ttaaagaaaa atttgctggc agaaagatta 180

tgatatgata caaaagcatg gatctccaca tatacaccca cacacacaaa tgaaaagtgc 240

tgaaatggta ttaataaagg ccaatgtaaa attcattttt ccttatattt aattctttta 300

aaattaaaag caaattaaaa ttaaaatcta aagcaaaagt agtgacacat agagatagaa 360

gaaggatggt gaccagaggc caggaagggt agtaggcaga agccagggca ccggagaggt 420

agagatggtt aatgaataca aaaaaattat tagaaagaat gagtaactta gtatttgata 480

gcacgacagg gtgactattg tcaaaataat cgtagatctt aaaataac 528

<210> 75
<211> 726
<212> DNA
<213> Homo sapien

<400> 75
acgtaaggaa agtaaaaaca agtaaaaata cctgtgaagc ccatcattat acttattgat 60

aatatctttc aaagatgaac aaaaaatgaa gacttttca gacgaacatc cgggaaattg 120

attattagca gacctgttct accaaaagta ttaaagaaaa atttgctggc agaaagatta 180

tgatatgata caaaagcatg gatctccaca tatacaccca cacacacaaa tgaaaagtgc 240

tgaaatggta ttaataaagg ccaatgtaaa attcattttt ccttatattt aattctttta 300

aaattaaaag caaattaaaa ttaaaatcta aagcaaaagt agtgacacat agagatagaa 360

gaaggatggt gaccagaggc caggaagggt agttggaggc aggggaaagt ggggatggtt 420

aacgggtaca aaaataaagt tagagagaat gaataagatc tagtatttgg tagagtaaca 480

gggtgactac agtcaatgat aatttattgt acatctttaa gtagttgaaa gagtatagtt 540

ggaatgtttg taacacaaag aaatgctaaa tgcttgaggt aatggaaacc ccatttacat 600

ggatgtgatt attatgcatt gcatgcctgt atcaaaatat ctcatatatg ccataaatat 660

atttgcctac tgtggaccca caaaaatgaa aaattaaaat tgaaaaaaaa aatgttaaaa 720

aaaaaa 726

<210> 76
<211> 580
<212> DNA
<213> Homo sapien

<400> 76
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gtggggttaa tgagcaccta tgtgaagggt ttttttttg ttttttttt tttgacagaa 180

tggcacaatc tctatatatc tctggggaac caagagggta aagtccgggt ctaggggtc 240

cggtggggac aacagggcat acccacactc acgaggggga gaaggtgtaa ccgggggtc 300

cctcgggccg ggagaccacg gcataacccg gaatcccagc acacggggcg ggcggtcaca 360

aggggactc cgaccctcgg gaaccaacgc gggggtacc caggggcat aggcgctccg 420

cgggtgggta agtggtactc cgaccacatc ccacacaaat tgcaacaaat agttgacagc 480

acaaccccag tccagacata ccacacacca acaccaacat atgagcacga acccgagaca 540

cacgaaaaca gcgccgacag agcgcaccag gccaccgaaa 580

<210> 77
<211> 658
<212> DNA
<213> Homo sapien

<400> 77
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tgcccatagg ctatagcagc caatagaaga cagttgtttt cttgggaata atagatcatc 180

tagttcttgt taagaagtca attcattaaa cagcggcttt catatattca acaactccat 240

tcatgctaaa ataattctct aatataatta tgattgattg atgggaactt atttcaataa 300

taataagcag acttatcgta cgaacaacac acaccgacta gacactatct atcacatgac 360

atgtagatgg gcaccaacaa gacatgggca agtccatttt cccgttttga acatgacgtg 420

ggcacaaaga acgaggggca gtgctccttc tttcatcacc tacctcctta cttgcgattc 480

agtgagttgg gtttgggata cggtttgctc gcgcccaggg cgggccaaat tttacgagcc 540

acggcgaagg aaacgggaca aactagagcg gaggtgtact tccaagtgtg acgcggaaga 600

aaggaagcga tccgttctct acgttatttc ctctggttgg gcccggaccg accaattg 658

<210> 78
<211> 523
<212> DNA
<213> Homo sapien

<400> 78
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ggagaacagt tttatgctgt gtgagaattt acaaaggact cttagagtcc gacatttggt 180

ccaaacaaga caggctatca cataggaaga tttttttttc cgtattgcaa ataaagaaac 240

tgaggaatac agtgattatg tgaccaggtc agagtggcat atctattatg aagaaagaac 300

gtaggactga aacccagggt ttatacacct cagcttaatc gaaactctcc tatgtttatc 360

gaacctttgt gcagatgcag agtcagtcat tatttaggtt gtagcaggtt ccacttaatt 420

tcattctagc tcgtggggta ctacggcttg tgcatttgat gtaatctggg ttgtctcccc 480

aaacaaaact caaagagtaa ccttaacact tttgatgtgg tgt 523

<210> 79

<211> 523
<212> DNA
<213> Homo sapien

<400> 79
gcgcatgtct ggagtcggtt acacaaaata ctcttagagg aatttttttt taagtttctt 60

tgttcaagtg acaccctatt aagaaagccc agttccttcc aaggaagcaa agttctaagg 120

gtacccaaga agcaggttaa aacttaaagg atcttaaaaa aaaaaaaaaa aaaagagtgg 180

ctcatagcaa gaaaaatttt aagggctgac ccagagcagt ccctcatttt ttatcccaaa 240

agacaaactt agtgtttcca aattttatgg gagaaatgat aggagttgcg aaatacccag 300

ggggccccag gaggcccctc ataactgtca gttgttttat ttgggggta agggagagta 360

aactatgtga tcaaatctgt gagtttttag ttaaatttca attaacttcc agattcactc 420

ctcaagcaat aactttgcta caccttgtca caaccaaagg ttctttttca aattttttt 480

tgcccacctt tcctctgctg actttattct ttacaaagtt cta 523

<210> 80
<211> 624
<212> DNA
<213> Homo sapien

<400> 80
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agggagttac tcagctgtga cacacccagc gtaaccaagc cacaaagtga ctttcacctg 120

tacacaaaat actcttagag gaatttttt ttaagtttct ttgttcaagt gacaccctat 180

taagaaagcc cagttccttc caaggaagca aagttctaag ggtacccaag aagcaggtta 240

aaacttaaag gatcttaaaa aaaaaaaaaa aaaaagagtg gctcatagca agaaaaattt 300

taagggctga cccagagcag tccctcattt tttatcccaa aagacaaact tagtgtttcc 360

aaattttatg ggagaaatga taggagttgc gaaataccca gggggcccca ggaggcccct 420

cataactgtc agttgtttta tttgggggt aagggagagt aaactatgtg atcaaatctg 480

tgagttttta gttaaatttc aattaacttc cagattcact cctcaagcaa taactttgct 540

acaccttgtc acaaccaaag gttctttttc aaattttttt ttgcccacct ttcctctgct 600

gactttattc tttacaaagt tcta 624

<210> 81
<211> 147
<212> DNA
<213> Homo sapien

<400> 81

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acaagtatac agaacactat gtatataatg tgttattgag gcctataaca tatagaaatg 120

ccatatagtt gccaaaaaca gcacaaa 147

<210> 82
<211> 783
<212> DNA
<213> Homo sapien

<400> 82
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gtatctcgaa aaggtttttt ttttttctt aaccttagta tttggttttt tccagattgg 120

aaaaaatact tttagtcatt tcttgtaaaa atgggtctgg tggtgatgaa tttggtttgt 180

ctagcaaaat gctttatcgt gtcttttata tttgaaggat agctttgctg gatgcaggtg 240

ttcttgaata gcagcatttt tttcagccac tttgaaatta ttgtatcact agtctactag 300

tcctagtata gatttaccat atgaaaattt aatattagct aagacgaata taggacctcc 360

tttatgtagt taacttgctt ctttcctact tgctagctat taaggatatc tctctatctg 420

tcttatgact gttgagagtt tgattcttta tatgcattgg ggtagtcttt attagggtaa 480

gaatctagtt tggtatttag ctagagcttc catacctgga tattcggtct ctttcctcaa 540

gtttgggcaa aatttggctg tcatttattt ctctttggga gttaaagctt tattaacccg 600

ttggcttctt agcttttaat tccctttttt ggagcaccag tacttcttta aaattggtcc 660

ttacgagggt aaatacacct ggatctggag gcttcctagg gttcctccca ttgtgataca 720

tttggggccc ccgggttttc aaatacctat tttgggccca aaatttccct attacgtatc 780

ggg 783

<210> 83
<211> 271
<212> DNA
<213> Homo sapien

<400> 83
gcaggtacat tcctctccag tccgttctga tcgagtccat tccatttcat tgcattccat 60

tcccgttcaa ttcccatccg gtccaatccc atttccaccc atcccattcc attggagtcc 120

attacattcc tgtccattcc ttcgactcca ttccattaaa ttccattcca ttccatttaa 180

ttcaatatca tcccctttaca ctccattcat ttctattatt tttgattcca ttgacttgca 240

atccatttga ttacattcca ttctattcct t 271

<210> 84
<211> 727
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (292)..(475)
<223> a, c, g or t

<400> 84
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atccataaat aaataaatat gtgtgctata caggctgttt acacgtatta ttattgtaca 180

aataaaacaa aaactaccta caaccagcaa aactatattc tgcacattac aacacaggtc 240

aaattgtgtc caaatccatg acataccaat acaaattaac tttatttttt annnnnnnnn 300

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 360

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 420

nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnttaaa 480

gacagggttt tgccatgttg gccaggcatg gtctcgaaac tcctgaacct caggtgcatc 540

cacctgacct tggcctctca aagatcgctg ggattatagg gcaatgagcc accgaaaact 600

gtcgcagaaa aaactttaaa tgtttaacac aagctccttt cagaccatat gttctagagc 660

acagaactgt ttatatggtc taagactcat tcaagttaac tcatgctatt catctccatt 720

ttccagc 727

<210> 85
<211> 828
<212> DNA
<213> Homo sapien

<400> 85
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atggacccag aggttcgtaa ggtaacattt aagaaaatga cggaatgaga taagcatgtg 180

tcctttacca gcctggcaga atttcacaag tgtttattaa ctcttggtct tgaaatgatt 240

tgataaggcc tctttggaga gtattgagaa gaacctatta aaaatggtaa catctttgac 300

ctagcctttc taccactaga aacctattct ctggaaatac tcaaactcat aaaagatata 360

tgtggggctg tgttctctat atagcattgc ttgtaaagac aacaaatttc aagttggctt 420

atatgtgttg tgggtggttg aaaaattata tggtatctcc ctacagtggc ttattctgta 480

gtcagttaaa aaagtgaggt ggatctctgt cctgacgtgt aaacagatga tgatatatta 540

aataaaaaag taagaggcag catctataag gatgatccca ttgttatatc acagctactg 600

ctgacctggt tgggtatgct tgtgttgtgc ctttaaaaat aaaaaagatt ctggaacaac 660

aaaggatatt gttccctgtg gctacctctg agaaaggtga ccatattgtc tcggtttgtt 720

ggggaaatat catggtttac acctgttgtt ctggtataat tattaatagt acctgcccaa 780

gccgaattcc agcacatgtc gccgtatcag tgatcggagc tcgatcac 828

<210> 86
<211> 869
<212> DNA
<213> Homo sapien

<400> 86
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aatgatttga taaggcctct ttggagagta ttgagaagaa cctattaaaa atggtaacat 180

tttgacctag cctttctacc actagaaacc tattctctgg aaatactcaa actcataaaa 240

gatatatgtg gggctgtgtt ctctatatag cattgcttgt aaagacaaaa atttcaagtt 300

ggcttatatg tgttgtgggt ggttgaaaaa ttatatggta tctccctaca gtggcttatt 360

ctgtagtcag ttaaaaaagt gaggtggatc tctgtcctga cgtgtaaaca gatgatgata 420

tattaaataa aaaagtaaga ggcagcatct ataaggatga tcccattgtt atatcacagc 480

tactgctgac ctggttgggt atgcttgtgt tgtgccttta aaaataaaaa agattctgga 540

acaacaaagg atattgttcc ctgtggctac ctctgagaaa ggtgaccata ttgtctcggt 600

ttgttgggga aatatcatgg tttacacctg ttgttctggt ataattatta atagtaccct 660

ctttcagtgt ttggtgaact gctttggatg gtgaattatg tgtttaccct accttcctct 720

gaggattgga attggggcaa gagaaatggg aaatgggctg tgacataggt gacccgtggg 780

tgtagtttac agcaagcagg tattcctttt atgagggaaa ttgaggaaga tggcaatgat 840

acattatgta gtggttcacg gcggagcca 869

<210> 87
<211> 944
<212> DNA
<213> Homo sapien

<400> 87
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aaaaaaaaaa attctgtttc tgaggggaa tgataattgt ggtgagtttg ccaaagaaag 120

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tttacgaaat gtatgcattt atgtaaacac tgctcactta tattattttc cgctcgacct 240

ttctctactt tcacacgcac ttgctacaac aacaaataca aaaaaacaaa aaaaaaaaaa 300

aacaaaaatt aaaaaataca acaagatcca ctgaaacatc aaaccagaca gaacaagaca 360

taaatagaac aacaatatac tacaccctca ctgtcattcc catctgcaca gtggagtgtc 420

gaccgaccac ccacaacccc tcctactctt gcaagacctt gccccacata tctgcctcca 480

cacacgtgct cgcctcctct cctcttccac caactcatga tcccgatctc catcctctgg 540

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tatcaaatca tttccaccac agcgataccc ctccctgcaa tctccactgt cacaagcttc 720

accaagcacc atacttcacc ctatgccctc ctccgccctg agaactaatc caacatcacg 780

taagtccgaa aacgaccatc cactacctag caacacgccc attctacttc cactcacgac 840

atatcaccat caactacgcg ctccccctcct aatcacttca caagatacca cctgacagaa 900

tcgggcatgc acccacaccc acaaacgact gaaaccacaa taac 944

<210> 88
<211> 1304
<212> DNA
<213> Homo sapien

<400> 88
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gattttatta tccttaggaa tgtcatccaa gacgtagagc ttgaatgtga cgttatttaa 180

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acccttgtgg tataaagtat tataaattgt tgtgaatttg aagaatccgt ctactgtatt 360

attgctaaat attttgttta tactaaggga caattatttt aagaccatgg atttaaaaaa 420

aaaaaaaaaa actctgtttc tgcaggggaa tgataattgt ggtgagtttg ccaaagaaag 480

caactacagc attatctgct ttgtgcctct cgtgtgggtt atatctttac ctgcagatta 540

tttacgaaat gtatgcattt atgtaaacac tgctcactta tattattttc cgctcgacct 600

ttctctactt tcacacgcac ttgctacaac aacaaataca aaaaaacaaa aaaaaaaaaa 660

aacaaaaatt aaaaaataca acaagatcca ctgaaacatc aaaccagaca gaacaagaca 720

taaatagaac aacaatatac tacaccctca ctgtcattcc catctgcaca gtggagtgtc 780

gaccgaccac ccacaacccc tcctactctt gcaagacctt gccccacata tctgcctcca 840

cacacgtgct cgcctcctct cctcttccac caactcatga tcccgatctc catcctctgg 900

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tcgggcatgc acccacaccc acaaacgact gaaaccacaa taac 1304

<210> 89
<211> 524
<212> DNA
<213> Homo sapien

<400> 89
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gtttatattg ttactcaaat acttaccact atttatgctg ataatctcag aagtattcat 120

agaaaagaaa tgggtgaggt ccttcacaca accacataca taaggcagta gagcagcgat 180

agctccactt cccaccgagt gaaatgtcac attgtaccac aatccttctc cagtgttatc 240

cacacataag gaaatgaaca tataaactcg cttgggcttc ctgatcacgt tttaataacg 300

cacgttaaca gtagggcaaa taacattaga agtgattata gtaaacattt ttaaagttat 360

cataatgcaa aatactaaac agcaacaatt tcccaaacaa caaagggaaa tacacttacc 420

ctttaagcaa gaaagtaagt ttctaacagt acctgcccgg gcgccgctcg aaagccgaat 480

tcgcagcaca ctgcggccgt tacaagtgag gcgagctcgt acag 524

<210> 90
<211> 794
<212> DNA
<213> Homo sapien

<400> 90
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aaaggaggag ttttgggcac atcttttgtg tgttgtgtgt aaggtcttta aaaggtgctg 180

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ccaatgtaag aagcccgtgt gtgcgtagta tagtatagta ccgtgtcgtt gagaagaagt 300

gtgaatactt gtgtaaatgg aatgacaagc ggtacgtttt atggttttaa taggtatggg 360

ataaaaactt taaaatattt gattttagct cttttatgtg gacttattgt ataaagcagt 420

gtctgatgct taatttgtgt aaaaggttgt ggttaaaata caatagtttg gtatgcttta 480

agccatgtga attcttttgt atgtgtctag ttaatggtac tatatacata gttttttttt 540

cctaaaaata atgtaactgt agtaaacatt tagtaggatt tctggtaaaa tgtatatact 600

actatgcatg atggaggaaa catttattta gtataagatt cgttctacat ttccaaatgt 660

atattctaaa aacagctgag gatttttttct ttttaaccaa catttcaaat acttaatgtt 720

tctcacccaa ttttaaatac ttggctatac gtacttccac tgaacctatc tttggttttt 780

accgccacca attt 794

<210> 91
<211> 764
<212> DNA
<213> Homo sapien

<400> 91
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aggcaatcag tatacccatc actgcaaaca tttattattt gttgtttgta gtgagaatat 120

tcaaaatcct ttcttatttc tgggctctat gttccatatt ccatgccatt ggtcctatgt 180

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tgaaagtcaa ggtagtactg aatgcctcca gcttttttata atttttattt gtgtccatca 300

aacaatatta tttgagacta taactccaca gccaatctat tatagactcc cattcaacaa 360

cactacaaca cacttttaca aacaatatat aaaaaaacaa ttattatata tctacccccct 420

atatacacaa aaaatgtgta atgaatgtgg gaaataataa gtgacacaaa ggggacaaat 480

gtgccatatc gaaaacctca tctaggcata cgggctaacc cccgttacta ttgtgaccaa 540

catttttact aaaccactat tctacacata tattattccc acaatccata gtgaatacca 600

cacgaaacta ataaatcaga gagacaaaaa tcaggacatc caccctatag caaaagtacc 660

cagtttaaat aaacagacga atataataag tttctaacct aacataacca cattatttcc 720

ccattctcta gggctaacta cttacatcaa aaagaacact acca 764

<210> 92